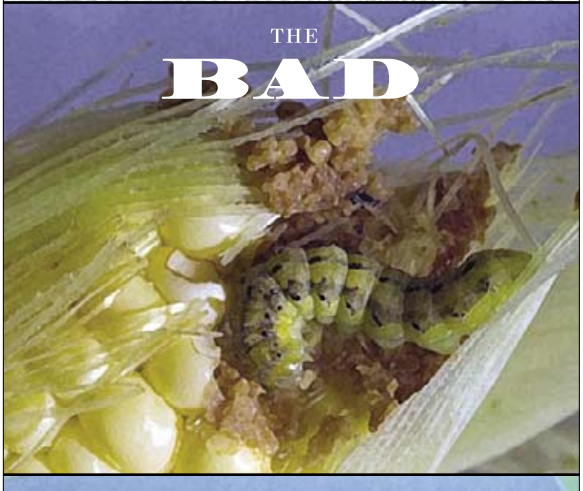
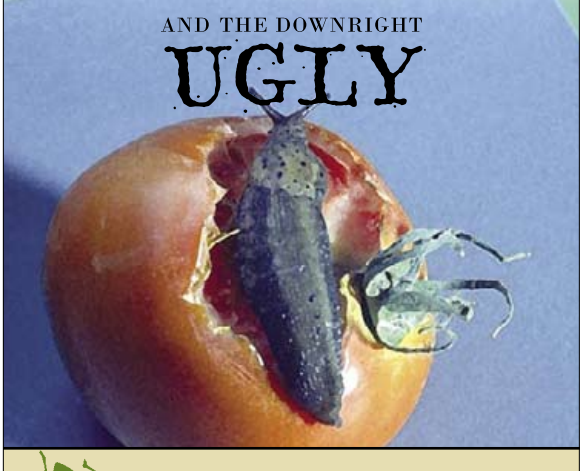
Clark County, Washington

presents

BUGS AND PESTS





Encourage the good and find alternative ways of getting rid of the bad - without using harmful chemicals.

CONTENTS

BALD-FACED HORNET

TYPE: GOOD | FAMILY: VESPIDAE | ACTUAL SIZE:

HOW TO RECOGNIZE: These insects resemble a yellow jacket but are larger, up to ¾ inch in length. They are mostly black, with a white face and white markings on the tip of the abdomen. These insects build large paper nests that can measure up to 14 inches in diameter and 24 inches long!

CONCERNS: If disturbed, these hornets will sting humans.

BENEFITS: They eat many pests including crane flies and other flies. They may also act as pollinators of some plants.

BUMBLE BEE

TYPE: GOOD | GENUS: BOMBUS SPP. | ACTUAL SIZE:

HOW TO RECOGNIZE: Large and lumbering, black and yellow bumble bees measure up to one inch in length. These fuzzy insects make a loud droning buzz as they fly somewhat awkwardly from flower to flower. Bumble bees nest in soil or leaf litter where a single queen lays 8 to 12 eggs in spring.

BENEFITS: Emerging workers are able to fly in very cool weather, making them a very valuable pollinator of a variety of plants.

HOW TO ATTRACT: As these bees nest in soil and leaf litter, try to leave a section of your yard undisturbed. A little "wild" place in your yard can offer a haven for many other beneficial insects that would otherwise be killed by tilling and mowing.

HONEY BEE

TYPE: GOOD | LATIN: APIS MELLIFERA | ACTUAL SIZE:

HOW TO RECOGNIZE: Adults measure ⅔ inch long and are fuzzy, with gold-and-black striped bodies and transparent wings. Honey bees can often be identified by the balls of yellow pollen they carry on the backs of their legs.

BENEFITS: Honey bees are important pollinators of many plants.

HOW TO ATTRACT: Grow flowering plants. Encourage wild honey bees. Because the spread of mites has seriously reduced honey bee populations, the wild honey bees that are left are even more important.

Bees, wasps, etc.

MASON BEE

TYPE: GOOD | LATIN: HOPLITIS PRODUCTA | ACTUAL SIZE:

HOW TO RECOGNIZE: Slightly smaller than a honey bee, these gentle, non-aggressive insects resemble house flies more than honey bees. They are deep blue-black in color and have no stripes.

BENEFITS: Mason bees pollinate apples, cherries, and other tree fruit. They are active between apple blossom and cherry blossom season, then die out by summer.

HOW TO ATTRACT: Provide them a home. Drill holes ¼ to ⅜ inch in diameter and 3 to 6 inches deep into wooden boards or blocks. Attach boards to a house or post near where you have seen the bees. Some protection from rain is a good idea. Position boards facing morning sun.

PARASITIC WASP

TYPE: GOOD | ORDER: HYMENOPTERA | ACTUAL SIZE:

HOW TO RECOGNIZE: Too small to be noticeable, these miniwasps don't sting people or pets. They range in size from the smallest insect known (about 1/50 inch) to about one inch, although most are on the small side. These parasites reproduce by laying their eggs in a pest host (adult or egg). The immature wasp feeds inside and kills its host. A round hole can often be seen where the adult parasite has chewed its way out.

BENEFITS: Different species may attack aphids, whiteflies, and butterflies or moths, such as cabbage loopers and hornworms.

IF YOU BUY: Many are available for sale to home gardeners. Examples are Encarsia formosa, which attacks greenhouse white flies, and Trichogramma species, which attack many caterpillar pests.

HOW TO ATTRACT: You need to have some of the prey around to be able to sustain populations of the parasite.

Bees, wasps, etc.

YELLOW JACKET

TYPE: GOOD | FAMILY: VESPIDAE | ACTUAL SIZE:

HOW TO RECOGNIZE: Adult wasps are 1/2 to 3/4 inch long, with characteristic yellow and black stripes and transparent wings.

BENEFITS: Yellow jackets and other wasps are predators of caterpillars, flies and beetle grubs.

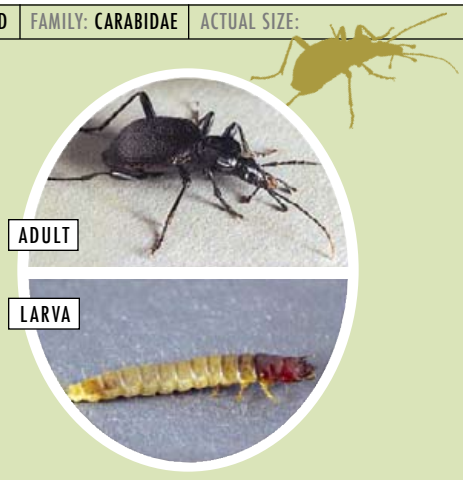
CONCERNS: Yellow jackets are often feared for their sting, which is a hazard to people who are allergic.

HINT: To occupy yellow jackets during a picnic, place raw meat or a fish head away from the picnic (over a bucket of soapy water).

HOW TO ATTRACT: Think about that nest in your yard: Does it really have to go? If the yellow jackets are not interfering with the lives of people in the area, leave the nest alone and get great pest-control and pollination benefits.

GROUND BEETLE

TYPE: GOOD | FAMILY: CARABIDAE | ACTUAL SIZE:



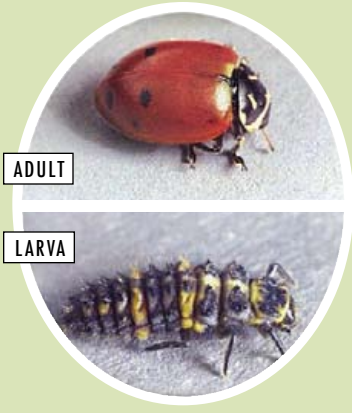
HOW TO RECOGNIZE: While shapes and colors may vary widely, they are usually shiny. Some are very ferocious-looking, but they are not known to bite people. Black is a common color, sometimes with a metallic sheen of another color on their wing covers. Most ground beetles feed at night and hide in the soil or under debris during the day. Adult beetles range from 1/8 to one inch long.

BENEFITS: These very common garden insects feed on many soil-inhabiting pests such as cutworms and root maggots. Some types eat slugs and snails.

HOW TO ATTRACT: You probably don't need to attract these common beetles. There are many specialized species of ground beetles. Unless it's discouraged with pesticides, the one that is right for your garden will find you. Low-till gardening techniques can save the lives of many soil-dwelling ground beetles.

LADY BEETLE

TYPE: GOOD | FAMILY: COCCINELIDAE | ACTUAL SIZE:



HOW TO RECOGNIZE: Most people know an adult lady beetle (ladybug), but the larvae are most valuable. The larvae are soft-bodied and alligator-shaped with black and orange markings. Each species has a distinct pattern.

BENEFITS: Both larvae and adults feed on soft-bodied insects such as aphids, mealybugs, scale insects and spider mites as well as insect eggs.

HOW TO ATTRACT: Plant flowers that produce pollen and nectar (dill, angelica). Allowing weeds (dandelion, wild carrot, yarrow) can help too. You could also spray a combination of whey and yeast on plants as a food source.

IF YOU BUY: We don't recommend buying lady beetles for pest control: most often they won't stay in your garden when released. To keep them around, try wetting plants first, and releasing beetles on the ground and under plants in the late evening (the beetles don't fly at night). The best thing is simply to attract natives.

ROVE BEETLE

TYPE: GOOD | FAMILY: STAPHYLINIDAE | ACTUAL SIZE:

HOW TO RECOGNIZE: These fascinating insects may resemble a tiny scorpion when they hold the tip of their abdomen up in the air. They are fast moving and measure 1/10 to one inch long.

BENEFITS: Depending upon species, rove beetles prey upon aphids, springtails, mites, nematodes, slugs, snails, fly eggs, and maggots. They also eat and help break down decaying organic material.

HOW TO ATTRACT: Create a "wild" area in your yard where leaves are allowed to pile up, the grass isn't mowed and the soil isn't tilled. This can give these and many other insects a haven.

Beetles

SOLDIER BEETLE

TYPE: GOOD | FAMILY: CANTHARIDAE | ACTUAL SIZE:

HOW TO RECOGNIZE: Approximately 1/2 inch in length, the adult soldier beetle has a narrow, black abdomen and bright red head or thorax. The soldier beetle larva is various shades of orange with black markings.

BENEFITS: Soldier beetles prey upon aphids, caterpillars, grasshopper eggs and beetle larvae, among other insects around the garden.

HOW TO ATTRACT: Since some soldier beetles feed on nectar, you may be able to attract them with flowering plants.

DRAGONFLY AND DAMSELFLY

TYPE: GOOD | ORDER: ODONATA | ACTUAL SIZE:

HOW TO RECOGNIZE: There are almost 80 species in Washington. They can be identified by their long narrow body, their large compound eyes, and the four transparent wings. There is variation in color. Sizes range from one to two inches. The larva is found in the water.

BENEFITS: They eat mosquitoes, aphids and other pest bugs.

HOW TO ATTRACT: Dragonflies and damselflies have decreased considerably in abundance as the wetland areas where they live have dramatically decreased. Want dragonflies? Don't fill in that marshy area. Better yet, enlarge it, or dig your own pond.

GREEN LACEWING

TYPE: GOOD | GENUS: CHRYSOPA SPP. | ACTUAL SIZE:

HOW TO RECOGNIZE: Adult green lacewings have delicate, light green bodies; large, clear wings; and bright golden or copper colored eyes. They are 1/2 to 3/4 inch long. The larvae are small, grayish brown and narrow, and they have pincer-like mandibles. Eggs are found on plant stems and foliage; they are laid singly or in small groups on top of fine, silken stalks.

BENEFITS: Lacewing larvae and adults feed voraciously upon aphids and other small insects, insect eggs and spider mites. They also eat leafhopper nymphs, whiteflies and small caterpillars.

HOW TO ATTRACT: Plant flowers that produce pollen and nectar. Adults are mobile, but lay eggs where they stop to eat.

IF YOU BUY: Success with lacewing eggs or larvae may require practice. Hold eggs at room temperature until the larvae begin hatching, then sprinkle them on plants (about one to five per square foot of garden space).

HOVER FLY

TYPE: GOOD | FAMILY: SYRPHIDAE | ACTUAL SIZE:

HOW TO RECOGNIZE: The adults have bodies with black and yellow stripes. While they look like bees or wasps, they don't sting. Both adults and larvae are about one-half inch long.

BENEFITS: Although not all are directly beneficial, many hover fly larvae prey on aphids, mealybugs and other small insects. Adults must feed on nectar before they reproduce, so are good pollinators.

TACHINID FLY

TYPE: GOOD | FAMILY: TACHINIDAE | ACTUAL SIZE:

HOW TO RECOGNIZE: Resembling house flies, tachinid flies are 1/3 to 1/2 inch in length and may be brown, gray or black in color. Some species are very hairy.

BENEFITS: There are many species of tachinid flies; many are parasites of pest caterpillars including cutworms, codling moths, tent caterpillars, cabbage loopers and gypsy moth larvae.

HOW TO ATTRACT: Plant flowers as well as herbs from the Umbelliferae family which includes dill, parsley, and Queen Anne's Lace as adults feed on nectar.

GARDEN SPIDER

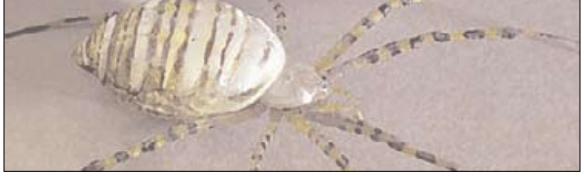
TYPE: GOOD | ORDER: ARANEAE | ACTUAL SIZE:

HOW TO RECOGNIZE: Spiders aren't insects at all. They can be identified by their eight legs. Although there are hundreds of species of spider in Washington, they all share this trait. Spiders are far more beneficial than they are dangerous. Most spiders are shy and harmless to humans. None of the lethal spider species live in western Washington.

BENEFITS: These arthropods are found everywhere, and are very important pest control agents. Spiders are predatory, feeding on a broad variety of pest insects.

HOW TO ATTRACT: You probably already have an abundance of spiders. The best way to encourage spiders is not to discourage them by destroying their webs.

You can help keep them out of your home by sealing cracks and openings, weatherstripping doors, covering outside woodpiles, and cleaning up junk piles.



PREDATORY MITE

TYPE: GOOD | ORDER: ACARINA | ACTUAL SIZE: →•

HOW TO RECOGNIZE: Adult mites are tiny, about half a millimeter in length, and are beige to reddish tan. They resemble pest mites but are faster moving and have fewer hairs.

BENEFITS: Predatory mites are valuable predators of pest mites such as spider mites.

IF YOU BUY: Predatory mites naturally occur in large numbers in the Northwest. Since you probably already have mites in your garden, it may not make sense to buy new ones for outdoor use. However, they may be useful for greenhouses and indoor plants. They are especially effective against spider mites. You can purchase predatory mites at many garden stores.

HOW TO ATTRACT: There is no great way to attract mites. Since you probably already have some, don't discourage them with pesticides.

ASSASSIN BUG

TYPE: GOOD | FAMILY: REDUVIIDAE | ACTUAL SIZE:

HOW TO RECOGNIZE: This aptly-named, vicious-looking bug is about 1/4 to one inch long, with a cone-shaped head and wide curving beak. They can cause a painful bite to a human if captured. Some species squeak if caught. Females lay single eggs in cracks, under rocks or in other sheltered spots in summer, and new adults emerge around the following June. There is only one generation per year.

A related family of smaller predatory insects that wait for their prey on flowers are called ambush bugs.

BENEFITS: Assassin bugs are voracious predators of many garden pests including flies, mosquitoes, beetles and large caterpillars.

Other good bugs

CENTIPEDE

TYPE: GOOD | CLASS: CHILOPODA | ACTUAL SIZE:

HOW TO RECOGNIZE: This long (½ to three inches) many-legged creature is light brown to black in color and moves quickly. Centipedes have only one pair of legs per segment. Millipedes, which eat plants rather than bugs, have two pairs per segment. Both prefer moist areas in the garden and compost piles.

BENEFITS: Centipedes prey on pests and insects in the soil including slugs, worms and fly pupae.

HOW TO ATTRACT: As with ground beetles, low-till gardening can maintain the populations of centipedes.

HEALTHY GARDENS

A HEALTHY GARDEN PROTECTS ITSELF AGAINST PESTS.

An insect attack usually means that something is wrong in your garden. Before you spray, ask:

- *How healthy is your soil?* Soil that has been improved with compost will grow healthier plants.
- *Did you plant the right plant in the right place?* A plant that loves shade won't do well in full sun. A plant that loves dry conditions won't do well in poorly-drained soil. Talk to the staff at your local nursery or refer to one of the many resource books available at your local library.
- *Did you give the plant the right care?* Know your plant and how much water it needs. Too much water can encourage disease. Too little water, especially before a new plant gets established, doesn't give the plant a chance to be healthy.

THE INSECTS IN YOUR GARDEN ARE OFTEN HELPFUL TO YOU.

They will:

- Eat pests that harm plants
- Pollinate plants
- Break down plant waste into fertilizer
- Provide food for birds and animals who also eat pests
- Aerate and improve your soil

PESTICIDES AND STORMWATER

WHAT IS STORMWATER?

Rain and runoff from household activities like watering the lawn or washing your car, flows from yards and into a storm drain (*see right*) or ditch. It carries everything it picks up into our lakes, streams and rivers. This includes the chemicals we use in our yards or on our roofs.

WHAT CAN INDIVIDUALS DO TO HELP KEEP OUR WATER CLEAN?

Lots of things!

- Use chemicals only as a last resort. This booklet contains useful information on alternatives to chemicals. When you must use chemicals, read and follow the directions so they are applied correctly.
- Use slow release organic fertilizers. Do not over-fertilize or wash away the fertilizer you've applied.
- Sweep your driveway and sidewalks instead of spraying debris away with the hose.
- Wash your car on the lawn or take it to a car wash that recycles the soapy water.
- Dispose of household hazardous waste properly at one of the three *FREE* drop-off locations listed in this booklet.

For more information about how you can help protect our streams and groundwater or about Clark County's Clean Water Program, call Clark County Water Resources at (360) 397-6118, ext. 4345.

DISPOSAL OF CHEMICALS

DISPOSE OF CHEMICALS SAFELY.

Take household hazardous waste to one of these collection sites:

- Central Transfer and Recycling Center
  11034 NE 117th Avenue, Vancouver
  Phone: (360) 256-8482
  Hours: Saturday and Sunday
  8 am to 4 p.m.

- West Van Materials Recovery Center
  6601 NW Old Lower River Road, Vancouver
  Phone: (360) 737-1727
  Hours: Friday and Saturday
  8 am to 4 p.m.

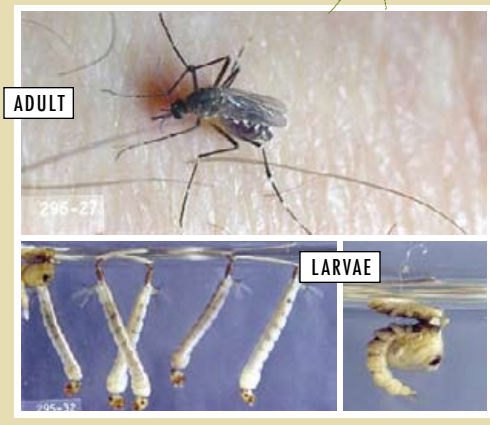
- Burlington Environmental Inc.
  625 S 32nd, Washougal
  Phone: (360) 835-8594
  Hours: First Tuesday of the month
  10:30 am to 3:30 p.m.

Clark County also sponsors a Door-To-Door Collection Program for elderly and disabled residents. For a hazardous waste pick-up, call (800) 449-7587. This service is free of charge to eligible residents in Clark County.

For more information about Household Hazardous Waste, or for a schedule of Satellite Collection Events, call Clark County Public Works, Solid Waste and Recycling at (360) 397-6118, ext 4352.

MOSQUITOES

TYPE: **BAD** | ORDER: **DIPTERA** | ACTUAL SIZE:



HOW TO RECOGNIZE: Up to 200 eggs are laid in a raft that floats on the surface of water. Larvae, called wrigglers, hang upside down from the water's surface and breath through siphon tubes. Female adults have long mammal skin piercing proboscises and make the characteristic whining sound through membranes on their thoraxes. Adult males have smaller proboscises and feed on fruit or plants.

HOSTS: Most animals.

FEEDING HABITS: Most prefer to feed at dusk or after dark although there are several species who feed throughout the day. Mosquitoes generally prefer to feed on horses, cattle, smaller mammals or birds to humans.

PREVENTION AND CONTROL: Avoid having standing water in your yard. Attract wildlife such as birds to disrupt the surface tension of the water causing the egg rafts and larvae to sink and drown. In permanent water features, keep mosquito-eating fish (Gambusia) or goldfish (Koi) present to feed on the insects.

APHIDS

TYPE: BAD | FAMILY: APHIDIDAE | ACTUAL SIZE:

HOW TO RECOGNIZE: Adults and nymphs are tiny, pear-shaped, sucking insects. Usually found on undersides of leaves and new shoots, they are 1/16 to 3/8 inch long. Colors include pale green, pink, yellow, powdery gray, olive green and black.

HOST PLANTS: Vegetables, fruits and ornamentals.

FEEDING HABITS: Aphids suck plant sap, distorting leaves, buds and shoots. Leaves and flowers may drop. They excrete sweet, sticky honeydew. Some transmit plant viruses.

PREVENTION AND CONTROL: Natural enemies are the best defense. They may also be removed from plants with a stream of water. On growing plants, spray with insecticidal soap.

Fruits, vegetables & flowers

(EUROPEAN) CABBAGE BUTTERFLY

TYPE: BAD | LATIN: PIERIS RAPAE | ACTUAL SIZE:

HOW TO RECOGNIZE: The cabbage butterfly larva is green and 1 3/8 inches in length As adults they have a wingspan of 1 1/8 to 2 inches. Their wings are yellowish white with black tip on their forewing. The females' wings have 2 small black spots, while males have one.

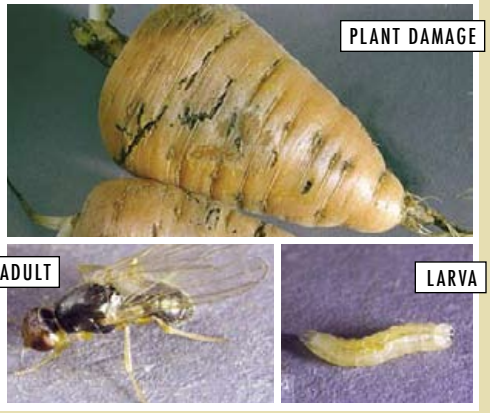
HOST PLANTS: Cabbage, turnip and mustard.

FEEDING HABITS: Larvae primarily eat members of the cabbage, turnip and mustard family.

PREVENTION AND CONTROL: Sticky tape can be effective. Interplant cabbage crops with clover, hand-pick caterpillars and crush eggs. Attract birds that will eat the larvae.

CARROT RUST FLY

TYPE: BAD | LATIN: PSILA ROSAE | ACTUAL SIZE:



HOW TO RECOGNIZE: Adult flies are less than 1/5 inch long. They are slender, shiny and dark with green bodies, yellow heads, and yellow-orange eyes and legs. Eggs are laid on young carrot plants where the stem and root meet the soil. Larvae are legless maggots and are yellowish-white.

HOST PLANTS: Carrots, celery, and parsnips.

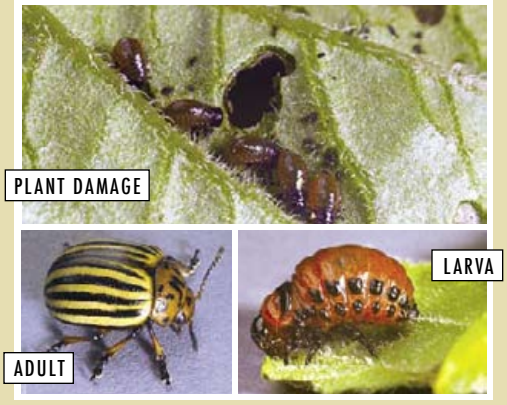
FEEDING HABITS: Newly hatched larvae feed on root hairs for two weeks until, as mature larvae, they tunnel into the root and feed directly on the flesh. They only feed on the lower two-thirds of the root. Another pest, the carrot weevil makes holes in the top third of carrots. The flies eat everything above ground, but larvae do all root damage.

PREVENTION AND CONTROL: Plant after the first generation of these pests has emerged. Row covers also prevent the laying of eggs. Plant in raised beds so that soil-dwelling beneficial beetles can eat the eggs and larvae of this pest.

Fruits, vegetables & flowers

COLORADO POTATO BEETLE

TYPE: BAD | LATIN: LEPTINTARSA DECEMLINEATA | ACTUAL SIZE:



HOW TO RECOGNIZE: Colorado potato beetles are 1/4 to 3/8 inch in length. They are yellow-brown to orange and have two black spots, which sometimes form a V on their heads. They also have black stripes on their sides. Larvae are dark red, maturing to orange with a black heads and black spots on their sides.

HOST PLANTS: Potato, tomato, eggplant, pepper, tobacco and other plants in the nightshade family.

FEEDING HABITS: They eat the leaves of the host plant and can cause extensive damage if the population is high. If feeding occurs within two weeks of peak flowering, it will have a severe effect on the yield of the host plant(s).

PREVENTION AND CONTROL: Mulch plants with straw to impede movement of the beetle. Handpick beetles off small areas of plants. Floating row covers made of synthetic material prevent access to the host plants while allowing air and moisture through to the plants. Surround potato fields with plastic lined trenches, as beetles are unable to climb up the plastic.

CORN EARWORM

TYPE: BAD | LATIN: HELIOTHIS ZEA | ACTUAL SIZE:

HOW TO RECOGNIZE: The adult moth has a wingspan of 1 to 1 1/2 inches and is yellowish-olive to pinkish-brown in color with a dark spot in the center of each fore wing. The hind wings are white with one or two dark bands. The larvae are yellowish-green to reddish-brown with pale stripes and black spots, slightly hairy, have a tan to orange colored head and curl up when disturbed. The larvae grow up to 1 3/4 inches in length.

HOST PLANTS: Corn is the preferred host, but they also eat alfalfa, soy beans, strawberries, tomatoes and many other cultivated plants.

FEEDING HABITS: They prefer the fruiting stage of the host, but do attack the foliage. Infested corn will reveal ragged blades when they unfurl.

PREVENTION AND CONTROL: Plant high quality, certified corn seed of varieties known for having "husk-tightness". Plant early to help ensure that plants mature before the earworm population peaks.

Fruits, vegetables & flowers

FLEA BEETLE

TYPE: BAD | FAMILY: CHRYSOMELIDAE | ACTUAL SIZE:

HOW TO RECOGNIZE: There are many varieties of flea beetles. They are all elongated to oval in shape and vary from 1/16 to 1/5 inch in length. They are dark colored and some may have stripes or yellowish-brown patches. They jump when they are disturbed, much like fleas.

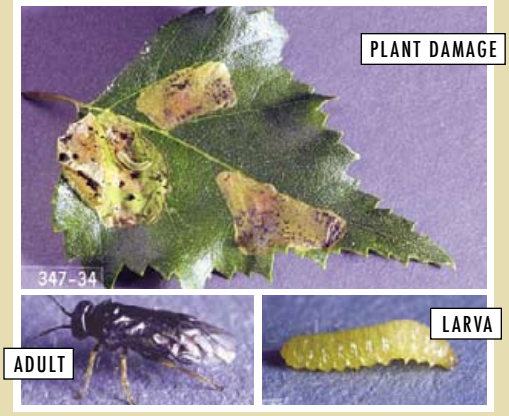
HOST PLANTS: Watermelons, pumpkins, peas, beans, eggplants, sweet potatoes, beets, spinach, and potatoes.

FEEDING HABITS: Swarms of feeding adults can devastate gardens, especially if the planting is in the seedling stage. Small round bites, taken mainly from the bottom of the leaves' surfaces cause plants to take on a shotholed appearance. Corn flea beetles feed between veins on the tops of leaves, resulting in a silvery, streaked appearance.

PREVENTION AND CONTROL: Keep weeds pulled and keep other plant debris away from plants to avoid providing a haven for developing flea beetles. Plant later in the year if possible to give plants the advantage of warmer weather to help them overcome and survive flea beetles.

LEAF MINERS

TYPE: BAD | LATIN: LIRIOMYZA BRYONIAE | ACTUAL SIZE:



HOW TO RECOGNIZE: Adults are tiny ($^1/_{10}$ inch long) yellow and black flies. Larvae are pale green or yellowish maggots and live in the surfaces of leaves. Eggs are white ovals or cylinders and are laid on leaves.

HOST PLANTS: Beans, blackberries, cabbage, celery, lettuce, peppers, potatoes, spinach, and turnips.

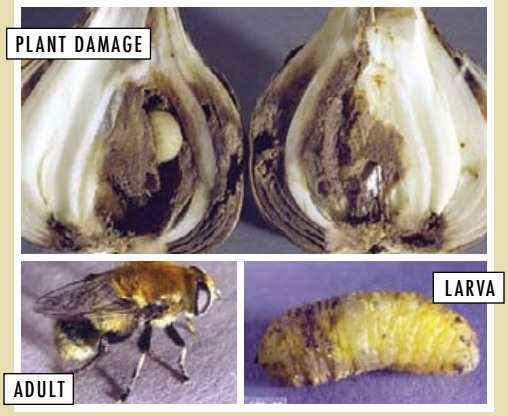
FEEDING HABITS: Larvae mine in leaves, leaving grayish tunnels. Mines may be long and curving or they may appear as whitish or gray blotched areas in the leaves.

PREVENTION AND CONTROL: Floating row covers are a reliable means of control. Remove and destroy infested leaves as soon as mines appear. Grow pollen and nectar plants to attract beneficial wasps.

Fruits, vegetables & flowers

NARCISSUS BULB FLY

TYPE: BAD | LATIN: MERODON EQUESTRIS | ACTUAL SIZE: 



HOW TO RECOGNIZE: Larvae are up to $^3/_4$ inch long, dirty tan in color, slightly curved, and plump. Adults are $^1/_3$ to $^1/_2$ inch long and resemble bumblebees although they may be more reddish-brown, orange or tan. The adults have a rapid flight and tend to hover.

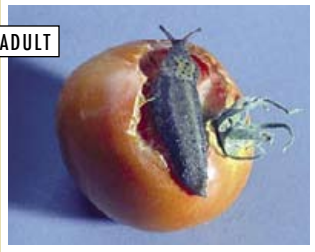
HOST PLANTS: Narcissus, daffodils, amaryllis, lilies, and tulips.

FEEDING HABITS: These pests hollow out the center of the bulb and destroy the flower bud causing most infested bulbs to rot away.

PREVENTION AND CONTROL: Cultivate the soil slightly to prevent the females from finding the holes left by the leaves in the fall. Hot water baths may be effective. Submerge infested plants in water 109 to 111 degrees Fahrenheit, for 40 minutes, but avoid overheating plants. Remove and destroy infested bulbs as soon as the tops die back. Catching the flies with a net and destroying them can also be effective as each female killed is 100 potential larvae avoided.

SLUGS

TYPE: BAD | FAMILY: LIMACIDAE | AVERAGE SIZE:



HOW TO RECOGNIZE: Thought of as snails without shells, slugs vary from 1/4 to 10 inches long. They move by using a slime-producing lever that is called a foot. They have retractable eyestalks.

HOST PLANTS: Corn, lettuce, beans, flowers, and strawberries.

FEEDING HABITS: They may consume entire plants, especially when the plants are young. Otherwise, they might just eat ragged holes in the leaves. As they glide across surfaces, they leave a slime trail, which appears silver when dry. They tend to feed at night and on cool, cloudy days.

PREVENTION AND CONTROL: Natural enemies of slugs include garter snakes, birds, and frogs. Ducks and geese are also highly effective slug hunters. Don't provide habitat for slugs (i.e. tall grass or piles of rocks or boards). Use a shallow dish of beer to attract and drown slugs.

Fruits, vegetables & flowers

STRAWBERRY ROOT WEEVIL

TYPE: BAD | LATIN: OTIORHYNCHUS ORTHUS | ACTUAL SIZE:

HOW TO RECOGNIZE: Larvae are 1/4 inch long, c-shaped, and cream colored with a brown head capsule. The adult is a small, hard-shelled, shiny black beetle with a narrow head and thorax and large, round abdomen. An easy way to describe them is "light bulb shaped." They have six legs and elbowed antennae. Adults are 1/5 to 1/3 inch long.

HOST PLANTS: Strawberries, evergreen trees and shrubs, and mint.

FEEDING HABITS: The larvae develop in the soil and feed on roots, causing the plant to become stunted and darkened. The adults emerge in mid-summer and eat foliage, but this causes no serious damage to the plant.

PREVENTION AND CONTROL: Plow infested beds under to prevent these pests from moving to other fields. Plant an unsuitable host (such as pumpkin or corn) for at least two years once an infestation has been discovered. Some general predatory insects, including carabid and staphylinid beetles, may also attack and control larvae.

EUROPEAN CRANE FLY

TYPE: BAD | LATIN: TIPULA PALUDOSA | ACTUAL SIZE:

HOW TO RECOGNIZE: These crane flies have slender grayish-brown bodies with a longer abdomen than head and thorax combined. The wingspan of an adult male varies from 1 1/4 to 1 1/2 inches while the female varies from 1 1/2 to 2 inches. Antennae are multi-segmented and are feathery in the males. Larvae are 1/2 to 1 1/2 inches long and vary from grayish to pale brown.

HOST PLANTS: Grass and wet moss mainly, but they also eat perennials and many small fruits and vegetables.

FEEDING HABITS: Adults do not eat or sting. Larvae (called "leatherjackets") feed on decaying vegetation, fungi, roots, leaves, and less often, animal matter. It takes several years for them to destroy an area such as a lawn.

PREVENTION AND CONTROL: Because they are attracted to soggy areas, minimize watering. Begin monitoring for larvae in early spring. Robins and other birds are the best form of control and can keep European crane fly populations low.

BARK BEETLE

TYPE: BAD | FAMILY: SCOLYTIDAE | ACTUAL SIZE:

HOW TO RECOGNIZE: Most bark beetles have rusty colored wings, are black or brown, cylindrical, hard-shelled, and between 1/8 and 1/3 inch long. Larvae are creamy white, cylindrical, legless grubs, about 1/4 inch long at maturity. Their heads are pale tan to pale rust colored.

HOST PLANTS: Mountain pine, spruce and Douglas fir.

FEEDING HABITS: Most species attack injured or dead trees or fallen branches and trees. A few species however will attack healthy trees. Adults bore through the bark then females excavate a tunnel between the bark and the wood in which to lay their eggs. When the eggs hatch the grubs burrow away from the egg tunnels to feed, then bore through the bark to fly to new locations.

PREVENTION AND CONTROL: As these beetles usually attack unhealthy trees, the best defense is to maintain healthy trees. Also, remove breeding grounds (dead or recently cut trees, limbs, slash, and firewood with bark) to avoid the propagation of these pests.

CODLING MOTH

TYPE: BAD | LATIN: CARPOCAPSA POMONELLA | ACTUAL SIZE:

HOW TO RECOGNIZE: Adults are grayish brown with a 3/4 inch wingspan. The wings have a fine wavy pattern of coppery brown lines with a darker band across the tips of the forewings. Larvae are white to pale pink and up to 3/4 inch long, with brown heads. Eggs are very difficult to see and are laid singly on buds, leaves, and twigs.

HOST PLANTS: Apples, crab apples, pears and occasionally other fruits and walnuts.

FEEDING HABITS: Larvae enter developing fruit, usually at the blossom end, and tunnel into the core, pushing crumbly excrement out of the entry hole.

PREVENTION AND CONTROL: Wrap 6 inches wide bands of corrugated cardboard around tree trunks during growing season and dispose of cocoons as they appear. Remove early fallen fruit as it may contain codling moth larvae.

COOLEY SPRUCE GALL ADELGID

TYPE: BAD | LATIN: ADELGES COOLEYI | ACTUAL SIZE:

HOW TO RECOGNIZE: Though they are often confused with aphids, adelgids have short antennae and no cornicles (the pipe-like organs on the tip of the abdomens of aphids). These pests go through a complex two-year life cycle, which requires habitation of both spruce and fir trees.

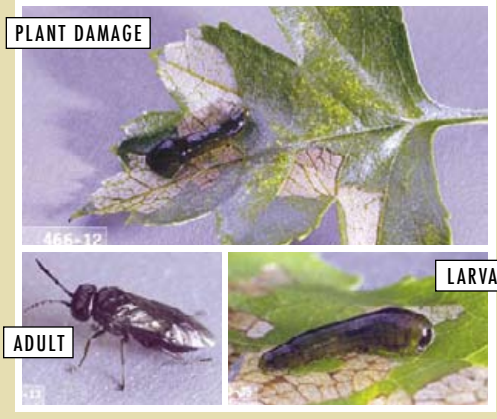
HOST PLANTS: Colorado spruce and Douglas fir, and occasionally Englemann and Sitka spruces.

FEEDING HABITS: This pest forms galls (swollen areas) on spruce trees and attacks the needles of firs. The young feed on tender new needles causing them to curl and discolor.

PREVENTION AND CONTROL: Avoid planting Colorado spruce and Douglas fir near one another as both trees are necessary for the completion of this pests entire life cycle. Some varieties of Douglas fir have proven to be resistant or tolerant to adelgid attack, so planting those varieties can be an effective means of minimizing adelgid damage.

PEAR SAWFLY

TYPE: BAD | LATIN: CALIROA CERASI | ACTUAL SIZE:



HOW TO RECOGNIZE: Adults are brown, 1/5 inch long, with antennae and yellow eyes. Their wings are clear with tiny black hairs. Larvae are white to tan with seven pairs of legs. Their heads and tails are brown to black. The eggs, which are colorless and shiny, are laid at the base of apple blossoms.

HOST PLANTS: Apple and crab apple trees.

FEEDING HABITS: Larvae first mine under the skin of developing fruit, leaving a spiral scar. Later, they tunnel into the core, leaving behind wet, reddish-brown sawdust.

PREVENTION AND CONTROL: Prompt, early removal of infested fruit prevents larvae from moving onto new fruit. For serious problems, one well-timed spray of canola oil, after flower petals fall, controls newly hatched larvae. Spraying is risky to bees and rarely necessary, except in commercial apple-growing areas where saw fly population may be high.

SPIDER MITES

TYPE: BAD | FAMILY: TETRANYCHIDAE | ACTUAL SIZE: →

HOW TO RECOGNIZE: These arachnids have four pairs of legs, no antennae, and a single, oval body region. Most spider mites have the ability to produce a fine silk webbing. Spider mites are very tiny, being less than 1/50 inch long when adults. They are usually pale yellow or green.

HOST PLANTS: Trees, house plants, and the undersides of leaves.

FEEDING HABITS: Spider mites have tiny mouthparts for piercing individual plant cells and removing the contents. This results in tiny yellow or white speckles. When many of these feeding spots occur near each other, the foliage takes on a yellow or bronzed cast. Once the foliage of a plant becomes bronzed, it often drops prematurely.

PREVENTION AND CONTROL: A forceful jet of water from a hose can knock these mites off the host plant while preserving them for natural predators. Lacewings and lady beetles feed on mites, but the most effective biological control is predator mites.

WESTERN TENT CATERPILLAR

TYPE: BAD | LATIN: MALACOSOMA CALIFORNICUM | ACTUAL SIZE:

HOW TO RECOGNIZE: Larvae are hairy and yellowish-brown with a broken blue line adjacent to orange spots down their backs. They are 1 3/4 inches long. Adults are yellow to reddish brown with a 2 to 3 inches wingspan and a stout body.

HOST PLANTS: Hawthorne, apple, and pear trees.

FEEDING HABITS: Larvae create silken webs which may enclose several branch tips and then eat the leaves off the tree they have infested.

PREVENTION AND CONTROL: Remove egg masses (hardened bands about 1 1/2 inches wide) from twigs. Hand pick and destroy larvae. Use yellow lights outdoors as that light is less attractive to adults.

MANAGING PESTS

A healthy garden keeps most insect pests in check naturally. To help keep your garden in balance, try the least-toxic methods first. Give them a few days to work before considering stronger methods.

- Accept minor damage. A totally pest-free garden is neither practical nor healthy. Healthy plants will often 'outgrow' the insect or disease that afflicts them. The few pests that remain will provide food for future generations of 'good bugs' to help you in the future.
- Try mechanical controls. Handpicking, traps, barriers, or a strong jet of water can reduce or thwart many pests, especially when a problem is just beginning.
- Use non-chemical alternatives. Encourage or release beneficial insects. Often there is a lag between the time a pest appears and when beneficial insects appear to control them.
- Depending on the pest, soaps, horticultural oils, botanical insecticides (such as natural pyrethrins) or, one of several packaged forms of Bacillus thuringiensis (Bt) may also be used.
- Encourage birds to visit your yard by providing trees, shrubs with berries, birdhouses and a source of water.
- To attract beneficial bugs to your yard, grow a variety of plants to provide nectar and pollen throughout the year. This will provide them with food and encourage them to stay in your garden when harmful pests cannot be found.

Visit http://pep.wsu.edu/hortsense/ to learn more about less-toxic methods for specific pests.

CHEMICALS AS A LAST RESORT

USE PESTICIDES ONLY AS A LAST RESORT.

If you think your pest problem can't be controlled with natural methods, don't just buy a chemical control and begin applying it. Follow these steps:

- Be sure you have correctly identified the problem. The insects you see may be predators, helping you to control the pest. Ask an expert if you're unsure.
- Are you applying the chemical at the right time? Pests may be more vulnerable – and more damaging – at certain stages of their lifecycle.
- Follow label directions exactly.
- Select a chemical targeted to the pest. Use as little as possible.
- Don't use persistent, broad-spectrum insecticides. These provide only temporary pest control and are likely to kill more of the natural enemies than the pests. Pest populations may soar and become more of a problem than before they were sprayed.

RESOURCES

CLARK COUNTY PUBLIC WORKS

Solid Waste and Recycling Program
Information about natural yard and garden techniques, waste reduction, recycling, composting, and household and business hazardous waste.
www.clark.wa.gov
E-mail: solidwaste@clark.wa.gov
(306) 397-6118 ext 4352

Clean Water Program
Information about how you can help protect our streams and groundwater or about Clark County's Clean Water Program.
www.clark.wa.gov
E-mail: cleanwater@clark.wa.gov
(360) 397-6118, ext. 4345

WSU COOPERATIVE EXTENSION
(360) 397- 6060

Master Gardeners
http://clark.wsu.edu/volunteer/mg/index.html

Master Composter/Recyclers
http://clark.wsu.edu/volunteer/mcr/

Watershed Stewards
http://clark.wsu.edu/volunteer/ws/index.html

good for FISH good for US

7.03 4094

CLARK COUNTY, WASHINGTON